

Amendments to the Specification:

NB 9/14/06 Please replace the five paragraphs beginning at page 4, line 8⁵, with the following rewritten paragraphs:

~~--Fig. 1 is a circuit diagram of the preferred compensation and drive electronics of the invention in conjunction with a DC torque motor and limited angle tachometer, particularly useful for damping an approximate 400 Hz belt mode;~~

[Fig. 2 is] Figs. 1A and 1B present a functional block diagram of the gimbal servo with a 2:1 mirror drive in which the invention is incorporated;

[Fig. 3 is] Figs. 2A and 2B present a functional block diagram of the mechanism mass properties including the yoke assembly and the 2:1 mirror belt drive assembly of Fig. 2;

Fig. 3 [4] is a functional block diagram of the active damper of Fig. 3 including the tachometer, compensation electronics, and motor and motor current amplifier; [and]

Fig. 4 [5] is a functional block diagram of the current loop of Fig. 4 including current loop compensation and motor characteristics; and

Fig. 5 is a circuit diagram of the preferred compensation and drive electronics of the invention in conjunction with a DC torque motor and limited angle tachometer, particularly useful for damping an approximate 400 Hz belt mode.--

NB 9/14/06

Please replace the four paragraphs beginning at page 4, line 25²², with the following rewritten paragraphs:

--Referring to Fig. 5 [1], the present invention is of an active damper 10 for stabilized mirrors (and a corresponding method), comprising a tachometer 12 measuring speed of the belt drive motor 14 and compensation and drive electronics 16. The invention stabilizes the line of sight of a belt driven mirror (e.g., in a gimbal assembly) when vibra-acoustic noise excites the belt mode resonance. Gimbal assemblies, for example, steer the line of sight of the mirror using a housing motor situated on a gyro platform, and an associated belt drive. As such, the active damper is configured to be insensitive to lower frequencies, thereby allowing the gimbal assembly to move the mirror at a relatively slow constant rate. The active damper prevents the higher natural frequencies from exciting the mirror and destabilizing the line of sight. The invention is insensitive to variations in the dampened belt mode that are induced thermally or via variations in manufacturing.

The active damper of the invention is an AC coupled rate loop (see Figs. 1A and 1B [Fig. 2]) designed to provide damping to the belt mode only. It has no effect at frequencies less than half the belt mode frequency. The compensation actually provides nearly zero phase shift at the lower and upper crossover frequencies of the damper control loop. The primary purpose of the coupling is to provide AC coupling, thus eliminating any influence upon the gimbal at lower frequencies where LOS control is desirable for scanning and pointing.

Fig. [1] 5 shows in detail the preferred electronics for the present invention. The design provides excellent performance, enabling an approximate 6 microradian stabilization and an approximate 70% damping of a belt mode at approximately 400 Hz. The design is simple, permitting an electronics card with a very small footprint and able to use conductors already in place on most gimbals.